

## CLAIMS

1. A power supply system comprising:
  - a DC power supply apparatus;
  - 5 a load device;
  - a lithium ion battery for backup that is connected in parallel with said DC power supply apparatus and said load device;
  - a charging path;
  - a charging current limiting circuit that is connected in series with said lithium ion
  - 10 battery and supplies a charging current of an arbitrary value independent of load fluctuations in the charging path of the lithium ion battery;
  - a switch that disconnects said lithium ion battery from said DC power supply apparatus or said load device, or connects said lithium ion battery to said DC power supply apparatus or said load device; and
  - 15 a control circuit that monitors the voltage value of said charging path, sets a reference voltage setting used for setting the charging current of an arbitrary value in said charging current limiting circuit, and controls said switch when said voltage of said charging path exceeds a specified voltage value during charging.
- 20 2. The power supply system in accordance with claim 1, wherein a plurality of said lithium ion batteries are connected in series, and
  - said power supply system is further provided with a voltage regulation circuit that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries, detects a full-charge voltage in each of said lithium ion batteries and
  - 25 bypasses said charging current.

3. A power supply system comprising:

a DC power supply apparatus;

a load device;

5 a plurality of series-connected lithium ion batteries that are connected in parallel with said DC power supply apparatus and said load device;

a charging current limiting circuit that is connected in series with said plurality of lithium ion batteries and that supplies a charging current of an arbitrary value independent of load fluctuations in the charging path of said plurality of lithium ion

10 batteries;

a switch that disconnects said plurality of lithium ion batteries from said DC power supply apparatus or said load device, or connects said plurality of lithium ion batteries to said DC power supply apparatus or said load device;

a voltage regulation circuit that is connected in parallel with each lithium ion  
15 battery of said plurality of series-connected lithium ion batteries, detects a full-charge voltage in each lithium ion battery and bypasses said charging current; and

a control circuit that monitors the voltage value and current value of said charging path, sets a reference voltage used for setting the charging current of an arbitrary value in said charging current limiting circuit and sets a full-charge reference voltage setting in  
20 said voltage regulation circuit, and switches said switch when said voltage of said charging path exceeds a specified voltage value during charging.